

Abstract of the Disclosure

Chemically or biochemically active agents or other species are patterned on a substrate surface by providing a micromold having a contoured surface and forming, on a substrate surface, a chemically or biochemically active agent or fluid precursor of a structure. A

5 chemically or biochemically active agent or fluid precursor also can be transferred from indentations in an applicator to a substrate surface. The substrate surface can be planar or non-planar. Fluid precursors of polymeric structures, inorganic ceramics and salts, and the like can be used to form patterned polymeric articles, inorganic salts and ceramics, reactive ion etch masks, etc. at the surface. The articles can be formed in a pattern including a portion having a lateral

10 dimension of less than about 1 millimeter or smaller. The indentation pattern of the applicator can be used to transfer separate, distinct chemically or biochemically active agents or fluid precursors to separate, isolated regions of a substrate surface. Waveguide arrays, combinatorial chemical or biochemical libraris, etc. can be made. Differences in refractive index of waveguide and cladding can be created by subjecting the waveguide and cladding, made of indentical

15 prepolymeric material, to different polymerization or cross-linking conditions. Interferometers are defined by coupling arrays of waveguides, where coupling can be controlled by altering the difference in refractive index between cladding and waveguide at any desired location of the array. Alteration and refractive index can be created photochemically, chemically, or the like. Sensors also are disclosed, including biochemical sensors.